

Claim Amendments:

Please cancel Claims 15, 45, 47, 48 and 112 without disclaimer or prejudice and amend Claims 1, 34 and 46 as follows:

1. (Currently Amended) A syringe comprising:  
a body comprising a distal discharge end;  
a plunger movably disposed within the body; [[and]]  
at least one agitation element comprising a casing and disposed within the body between the plunger and the distal discharge end, the at least one agitation element operable to agitate an ultrasound contrast fluid in the syringe when the syringe is moved to substantially maintain the homogeneity and integrity of the ultrasound contrast fluid without substantially impairing the diagnostic properties thereof; and

an annular recess defined in the plunger to accommodate the at least one agitation element.

2-3. (Canceled)

4. (Original) The syringe of Claim 1 wherein the at least one agitation element has a density different from that of the fluid contained within the syringe.

5. (Original) The syringe of Claim 1 wherein the at least one agitation element comprises a solid.

6. (Original) The syringe of Claim 5 wherein the at least one agitation element has a density greater than that of the fluid in the syringe.

7. (Original) The syringe of Claim 1 wherein the at least one agitation element comprises a gas.

8-12. (Canceled)

13. (Original) The syringe of Claim 1, further comprising a recess defined in the body of the syringe, the recess operable to accommodate the at least one agitation element.

14. (Original) The syringe of Claim 13 wherein the recess is defined adjacent to the distal discharge end of the syringe.

15. (Canceled)

16. (Previously Presented) The syringe of Claim 13 wherein the recess comprises an annular recess.

17. (Original) An injector system comprising:

an injector comprising means for mounting a syringe thereon;

a syringe comprising a body having a distal discharge end and means cooperable with the injector means for mounting the syringe on the injector, a plunger movably disposed within the body, and at least one agitation element disposed within the body between the plunger and the distal discharge end; and

a movement mechanism operably associated with the injector, the movement mechanism operable to move the syringe such that the at least one agitation element agitates a fluid contained in the syringe.

18. (Original) The injector system of Claim 17 wherein the fluid comprises a contrast agent.

19. (Original) The injector system of Claim 18 wherein the contrast agent comprises an ultrasound contrast agent.

20. (Original) The injector system of Claim 17 wherein the at least one agitation element has a density different from that of the fluid contained within the syringe.

21. (Original) The injector system of Claim 17 wherein the at least one agitation element comprises a solid.

22. (Original) The injector system of Claim 21 wherein the at least one agitation element has a density greater than that of the fluid in the syringe.

23. (Original) The injector system of Claim 17 wherein the at least one agitation element comprises a gas.

24. (Original) The injector system of Claim 17 wherein the movement mechanism moves the syringe in one or more of circular, partially circular and linear motions.

25. (Original) The injector system of Claim 17 wherein the movement mechanism moves the syringe in a rotational motion.

26. (Canceled)

27. (Original) The injector system of Claim 23 wherein the at least one agitation element is surrounded by a cover.

28. (Original) The injector system of Claim 17, further comprising a recess defined in the body of the syringe, the recess operable to accommodate the at least one agitation element.

29. (Original) The injector system of Claim 28 wherein the recess is defined adjacent to the distal discharge end of the syringe.

30. (Original) The injector system of Claim 17, further comprising a recess defined in the plunger of the syringe, the recess operable to accommodate the at least one agitation element.

31. (Previously Presented) The injector system of Claim 28 wherein the recess comprises an annular recess.

32. (Original) A method for agitating the contents of a syringe, comprising:  
providing an injector comprising means for mounting a syringe thereon;  
providing a syringe comprising a body having a distal discharge end and means cooperable with the injector means for mounting the syringe on the injector, a plunger movably disposed within the body, and at least one agitation element disposed within the body between the plunger and the distal discharge end;

providing a movement mechanism operably associated with the injector, the movement mechanism operable to move the syringe such that the at least one agitation element agitates a fluid contained in the syringe;

activating the movement mechanism to move the syringe; and

agitating the fluid in the syringe with the at least one agitation element.

33. (Original) The method of Claim 32, further comprising the step of deactivating the movement mechanism to terminate the agitation of the syringe contents.

34. (Currently Amended) A syringe comprising:

a body comprising a distal discharge end;

a plunger movably disposed within the body; [[and]]

at least one agitation element comprising a gas surrounded by a cover and disposed within the body between the plunger and the distal discharge end, the at least one agitation element operable to agitate an ultrasound contrast fluid in the syringe when the syringe is moved to substantially maintain the homogeneity and integrity of the

ultrasound contrast fluid without substantially impairing the diagnostic properties thereof;

and

an annular recess defined in the body or the plunger to accommodate the at least one agitation element.

35-36. (Canceled)

37. (Previously Presented) The syringe of Claim 34 wherein the at least one agitation element has a density different from that of the fluid contained within the syringe.

38-45. (Canceled)

46. (Currently Amended) The syringe of Claim [[45]] 1 wherein the recess is defined in the body of the syringe adjacent to the distal discharge end thereof.

47-48. (Canceled)

49. (Previously Presented) A syringe comprising:  
a body comprising a distal discharge end;  
a plunger movably disposed within the body;  
at least one agitation element disposed within the body between the plunger and the distal discharge end, the at least one agitation element operable to agitate a fluid in the syringe; and

an annular recess defined in the body of the syringe, the annular recess operable to accommodate the at least one agitation element.

50. (Previously Presented) The syringe of Claim 49 wherein the fluid comprises a contrast agent.

51. (Previously Presented) The syringe of Claim 50 wherein the contrast agent comprises an ultrasound contrast agent.

52. (Previously Presented) The syringe of Claim 49 wherein the at least one agitation element has a density different from that of the fluid contained within the syringe.

53. (Previously Presented) The syringe of Claim 49 wherein the at least one agitation element comprises a solid.

54. (Previously Presented) The syringe of Claim 53 wherein the at least one agitation element has a density greater than that of the fluid in the syringe.

55. (Previously Presented) The syringe of Claim 49 wherein the at least one agitation element comprises a gas.

56-58. (Canceled)

59. (Previously Presented) The syringe of Claim 49 wherein the at least one agitation element comprises a casing.

60. (Previously Presented) The syringe of Claim 55 wherein the at least one agitation element is surrounded by a cover.

61. (Canceled)

62. (Previously Presented) An injector system comprising:  
an injector comprising a syringe mounting device;  
a syringe comprising:

a body comprising a distal discharge end and an injector attachment device cooperable with the syringe mounting device for mounting the syringe on the injector;  
a plunger movably disposed within the body; and  
at least one agitation element disposed within the body between the plunger and the distal discharge end; and  
a movement mechanism operably associated with the injector, the movement mechanism operable to move the syringe such that the at least one agitation element agitates a fluid contained in the syringe.

§ 63. (Previously Presented) The injector system of Claim 62 wherein the fluid comprises a contrast agent.

64. (Previously Presented) The injector system of Claim 63 wherein the contrast agent comprises an ultrasound contrast agent.

65. (Previously Presented) The injector system of Claim 62 wherein the at least one agitation element has a density different from that of the fluid contained within the syringe.

66. (Previously Presented) The injector system of Claim 62 wherein the at least one agitation element comprises a solid.

67. (Previously Presented) The injector system of Claim 66 wherein the at least one agitation element has a density greater than that of the fluid in the syringe.

68. (Previously Presented) The injector system of Claim 62 wherein the at least one agitation element comprises a gas.

69. (Previously Presented) The injector system of Claim 62 wherein the movement mechanism moves the syringe in one or more of circular, partially circular and linear motions.

70. (Previously Presented) The injector system of Claim 62 wherein the movement mechanism moves the syringe in a rotational motion.

71. (Canceled)

72. (Previously Presented) The injector system of Claim 68 wherein the at least one agitation element is surrounded by a cover.

73. (Previously Presented) The injector system of Claim 62, further comprising a recess defined in at least one of the body of the syringe and the plunger of the syringe, the recess operable to accommodate the at least one agitation element.

74. (Previously Presented) The injector system of Claim 73 wherein the recess is defined in the body of the syringe adjacent to the distal discharge end thereof.

75. (Previously Presented) The injector system of Claim 73 wherein the recess is defined in the plunger of the syringe

76. (Previously Presented) The injector system of Claim 73 wherein the recess comprises an annular recess.

77. (Previously Presented) An injector system comprising:  
an injector comprising a syringe mounting device;  
a syringe comprising:  
a body comprising a distal discharge end and an injector attachment device  
cooperable with the syringe mounting device for mounting the syringe on the injector;

a plunger movably disposed within the body; and  
at least one agitation element disposed within the body between the  
plunger and the distal discharge end; and

a movement mechanism operably associated with the injector, the movement  
mechanism operable to rotate the syringe such that the at least one agitation element  
agitates a fluid contained in the syringe.

78. (Previously Presented) The injector system of Claim 77 wherein the fluid  
comprises a contrast agent.

79. (Previously Presented) The injector system of Claim 78 wherein the contrast  
agent comprises an ultrasound contrast agent.

80. (Previously Presented) The injector system of Claim 77 wherein the at least  
one agitation element has a density different from that of the fluid contained within the  
syringe.

81. (Previously Presented) The injector system of Claim 77 wherein the at least  
one agitation element comprises a solid.

82. (Previously Presented) The injector system of Claim 81 wherein the at least  
one agitation element has a density greater than that of the fluid in the syringe.

83. (Previously Presented) The injector system of Claim 77 wherein the at least  
one agitation element comprises a gas.

84. (Previously Presented) The injector system of Claim 77 wherein the  
movement mechanism is further operable to move the syringe in one or more of circular,  
partially circular and linear motions.

85. (Canceled)

86. (Previously Presented) The injector system of Claim 83 wherein the at least one agitation element is surrounded by a cover.

87. (Previously Presented) The injector system of Claim 77, further comprising a recess defined in at least one of the body of the syringe and the plunger of the syringe, the recess operable to accommodate the at least one agitation element.

88. (Previously Presented) The injector system of Claim 87 wherein the recess is defined in the body of the syringe adjacent to the distal discharge end thereof.

89. (Previously Presented) The injector system of Claim 87 wherein the recess is defined in the plunger of the syringe

90. (Previously Presented) The injector system of Claim 87 wherein the recess comprises an annular recess.

91. (Previously Presented) An injector system comprising:

an injector comprising a syringe mounting device;

a syringe comprising:

a body comprising a distal discharge end, an injector attachment device cooperable with the syringe mounting device for mounting the syringe on the injector, and a recess defined therein;

a plunger movably disposed within the body; and

at least one agitation element disposed within the body between the plunger and the distal discharge end, the recess operable to accommodate the at least one agitation element; and

a movement mechanism operably associated with the injector, the movement mechanism operable to move the syringe such that the at least one agitation element agitates a fluid contained in the syringe.

92. (Previously Presented) The injector system of Claim 91 wherein the fluid comprises a contrast agent.

93. (Previously Presented) The injector system of Claim 92 wherein the contrast agent comprises an ultrasound contrast agent.

94. (Previously Presented) The injector system of Claim 91 wherein the at least one agitation element has a density different from that of the fluid contained within the syringe.

95. (Previously Presented) The injector system of Claim 91 wherein the at least one agitation element comprises a solid.

96. (Previously Presented) The injector system of Claim 95 wherein the at least one agitation element has a density greater than that of the fluid in the syringe.

97. (Previously Presented) The injector system of Claim 91 wherein the at least one agitation element comprises a gas.

98. (Previously Presented) The injector system of Claim 91 wherein the movement mechanism moves the syringe in one or more of circular, partially circular and linear motions.

99. (Previously Presented) The injector system of Claim 91 wherein the movement mechanism moves the syringe in a rotational motion.

100. (Canceled)

101. (Previously Presented) The injector system of Claim 97 wherein the at least one agitation element is surrounded by a cover.

102. (Previously Presented) The injector system of Claim 91 wherein the recess is located adjacent to the distal discharge end of the syringe.

103. (Previously Presented) The injector system of Claim 91 wherein the recess comprises an annular recess.

104. (Previously Presented) A method for agitating the contents of a syringe comprising a body having a distal discharge end, a plunger movably disposed within the body and at least one agitation element disposed within the body between the plunger and the distal discharge end, the method comprising:

providing a movement mechanism operably associated with an injector to which the syringe is mounted, the movement mechanism operable to move the syringe such that the at least one agitation element agitates a fluid contained in the syringe;

activating the movement mechanism to move the syringe; and

agitating the fluid in the syringe with the at least one agitation element.

105. (Previously Presented) The method of Claim 104, further comprising:  
deactivating the movement mechanism to terminate the agitation of the syringe contents.

106. (Previously Presented) The method of Claim 104 wherein the contents of the syringe comprise a contrast agent.

107. (Previously Presented) The method of Claim 104 wherein the movement mechanism rotates the syringe.

108. (Canceled)

109. (Previously Presented) The method of Claim 104 wherein the syringe further comprises a recess defined in at least one of the body of the syringe and the plunger of the syringe, the recess operable to accommodate the at least one agitation element.

110. (Previously Presented) The method of Claim 109 wherein the recess is defined in the body of the syringe adjacent to the distal discharge end thereof.

111. (Previously Presented) The method of Claim 109 wherein the recess comprises an annular recess.

112. (Canceled)

113. (Previously Presented) The injector system of Claim 30 wherein the recess comprises an annular recess.

114. (Previously Presented) The injector system of Claim 17, further comprising a control device operably associated with the movement mechanism, the control device operable to control the movement of the syringe induced by the movement mechanism.

115. (Previously Presented) The injector system of Claim 19, further comprising a control device operably associated with the movement mechanism, the control device operable to control the movement of the syringe induced by the movement mechanism to substantially maintain the homogeneity and integrity of the ultrasound contrast agent without substantially impairing the diagnostic properties thereof.

116. (Previously Presented) The injector system of Claim 115 wherein the control device is operable to control the intensity and/or frequency of the movement of the syringe.

117. (Previously Presented) The injector system of Claim 17 wherein the movement mechanism comprises a motor.

118. (Previously Presented) The injector system of Claim 17 wherein the movement mechanism comprises an accessory comprising a base, a surface connected to the base via a pivot joint, a motor and a linkage connected between the motor and the base and the surface.

119. (Previously Presented) The injector system of Claim 17 wherein the movement mechanism comprises a vibratory agitator.

120. (Previously Presented) The injector system of Claim 62, further comprising a control device operably associated with the movement mechanism, the control device operable to control the movement of the syringe induced by the movement mechanism.

121. (Previously Presented) The injector system of Claim 64, further comprising a control device operably associated with the movement mechanism, the control device operable to control the movement of the syringe induced by the movement mechanism to substantially maintain the homogeneity and integrity of the ultrasound contrast agent without substantially impairing the diagnostic properties thereof.

122. (Previously Presented) The injector system of Claim 121 wherein the control device is operable to control the intensity and/or frequency of the movement of the syringe.

123. (Previously Presented) The injector system of Claim 62 wherein the movement mechanism comprises a motor.

124. (Previously Presented) The injector system of Claim 62 wherein the movement mechanism comprises an accessory comprising a base, a surface connected to the base via a pivot joint, a motor and a linkage connected between the motor and the base and the surface.

125. (Previously Presented) The injector system of Claim 62 wherein the movement mechanism comprises a vibratory agitator.

126. (Previously Presented) The injector system of Claim 77, further comprising a control device operably associated with the movement mechanism, the control device operable to control the rotation of the syringe induced by the movement mechanism.

127. (Previously Presented) The injector system of Claim 79, further comprising a control device operably associated with the movement mechanism, the control device operable to control the rotation of the syringe induced by the movement mechanism to substantially maintain the homogeneity and integrity of the ultrasound contrast agent without substantially impairing the diagnostic properties thereof.

128. (Previously Presented) The injector system of Claim 127 wherein the control device is operable to control the intensity and/or frequency of the movement of the syringe.

129. (Previously Presented) The injector system of Claim 77 wherein the movement mechanism comprises a motor.

130. (Previously Presented) The injector system of Claim 77 wherein the movement mechanism comprises an accessory comprising a base, a surface connected to

the base via a pivot joint, a motor and a linkage connected between the motor and the base and the surface.

131. (Previously Presented) The injector system of Claim 77 wherein the movement mechanism comprises a vibratory agitator.

132. (Previously Presented) The injector system of Claim 91, further comprising a control device operably associated with the movement mechanism, the control device operable to control the movement of the syringe induced by the movement mechanism.

133. (Previously Presented) The injector system of Claim 93, further comprising a control device operably associated with the movement mechanism, the control device operable to control the movement of the syringe induced by the movement mechanism to substantially maintain the homogeneity and integrity of the ultrasound contrast agent without substantially impairing the diagnostic properties thereof.

134. (Previously Presented) The injector system of Claim 133 wherein the control device is operable to control the intensity and/or frequency of the movement of the syringe.

135. (Previously Presented) The injector system of Claim 91 wherein the movement mechanism comprises a motor.

136. (Previously Presented) The injector system of Claim 91 wherein the movement mechanism comprises an accessory comprising a base, a surface connected to the base via a pivot joint, a motor and a linkage connected between the motor and the base and the surface.

137. (Previously Presented) The injector system of Claim 91 wherein the movement mechanism comprises a vibratory agitator.

138. (Canceled)

139. (Previously Presented) The injector system of Claim 17 wherein the movement mechanism is connected to the syringe.

140. (Previously Presented) The method of Claim 32 wherein the movement mechanism is connected to the syringe.

§ 141. (Canceled)

142. (Previously Presented) The injector system of Claim 62 wherein the movement mechanism is connected to the syringe.

143. (Previously Presented) The method of Claim 104 wherein the movement mechanism is connected to the syringe.

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